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Electroacupuncture Enhancing Physical Performance of Athletes



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Introduction

The High intense interval training - HIIT - is a method that promotes different intensities during the workout (85%-100% do VO_{2max}). These intervals may be active or passive movement with moderate intensity. Frequencies of heart rate frequencies among 85%-95% are suggested with practice during 4 seconds until 4 minutes [1]. This kind of work out is usual on treadmill or accelerometers model, 2-3 times a week, with 20-30 minutes each section of work out, its mail be less, it will variate according physical quality to be trained [2-4].

Besides the cardiovascular protections promoted by physical activities, this model of physical conditioning prevents of suddenly death when compared with exercises on continuing training model [1]. Highly intensive activities followed by active rest intervals with lower intensities improve high levels of lactate that be removed during these intervals [5,6] shows that programs with high intensity improve metabolic modifications during and after the work out. Some of them can promote muscles injuries, that can be detected by laboratorial serum exams. The product of glycolytic pathway is lactate. It comes from pyruvate and dehydrogenase lactate. The low levels of oxygen improve higher levels of lactate. On muscle contraction levels of lactate turns exponentially higher, it is correlated with muscle fatigue [7]. On athletic performance the lactate metabolism is important to cause high levels of this substance is a physical conditioning monitor. The rest serum lactate is a potential predictive of muscular fatigue levels during the works out practice and competitions [8]. Apply practices who will improve athletic performances and the same time improve a therapeutic tissue protection avoiding injuries and doping risk should be well viewed by sports community [8].

Besides the acupuncture interventions treat chronic conditions, it has been used to increased athletic performance.

On a specific case the acupuncture improves the endurance and hemodynamics parameters [9,10]. Acupuncture, an oriental technique with proven benefits for human health [11,12] involves needle insertion into specific sites of the body to stimulate them and release so-called chakra energy. According to traditional oriental medicine, vital energy retained at these points may be the cause of disorders. Studies have demonstrated the positive effects of acupuncture on athletic performance. It has shown curative properties for joint and muscle injuries, in addition to improving sport performance, endurance, resistance, muscle strength and power [13], observed that acupuncture increased local circulation, primarily by producing nitric oxide, which induces vasodilation and stimulates the production of substances that alleviate pain. This was subsequently corroborated who reported that participants exhibited less perceived pain, allowing them to exercise with greater intensity. At least, the electroacupuncture and manual acupuncture is a technic that can be applied to improve and enhance performance of athletes in several sports' modalities. Further, is necessary more research, randomized control trails, data with scientific evidences to clarify doubts to create specifics protocols to many physical qualities..

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